YAKEEN

Summary, Doubts and Quiz

BODY FLUIDS AND CIRCULATION

BY 'DR. MANISH DUBEY'

SUMMARY, DOUBTS AND QUIZ

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SUMMARY

PART- 1

BLOOD

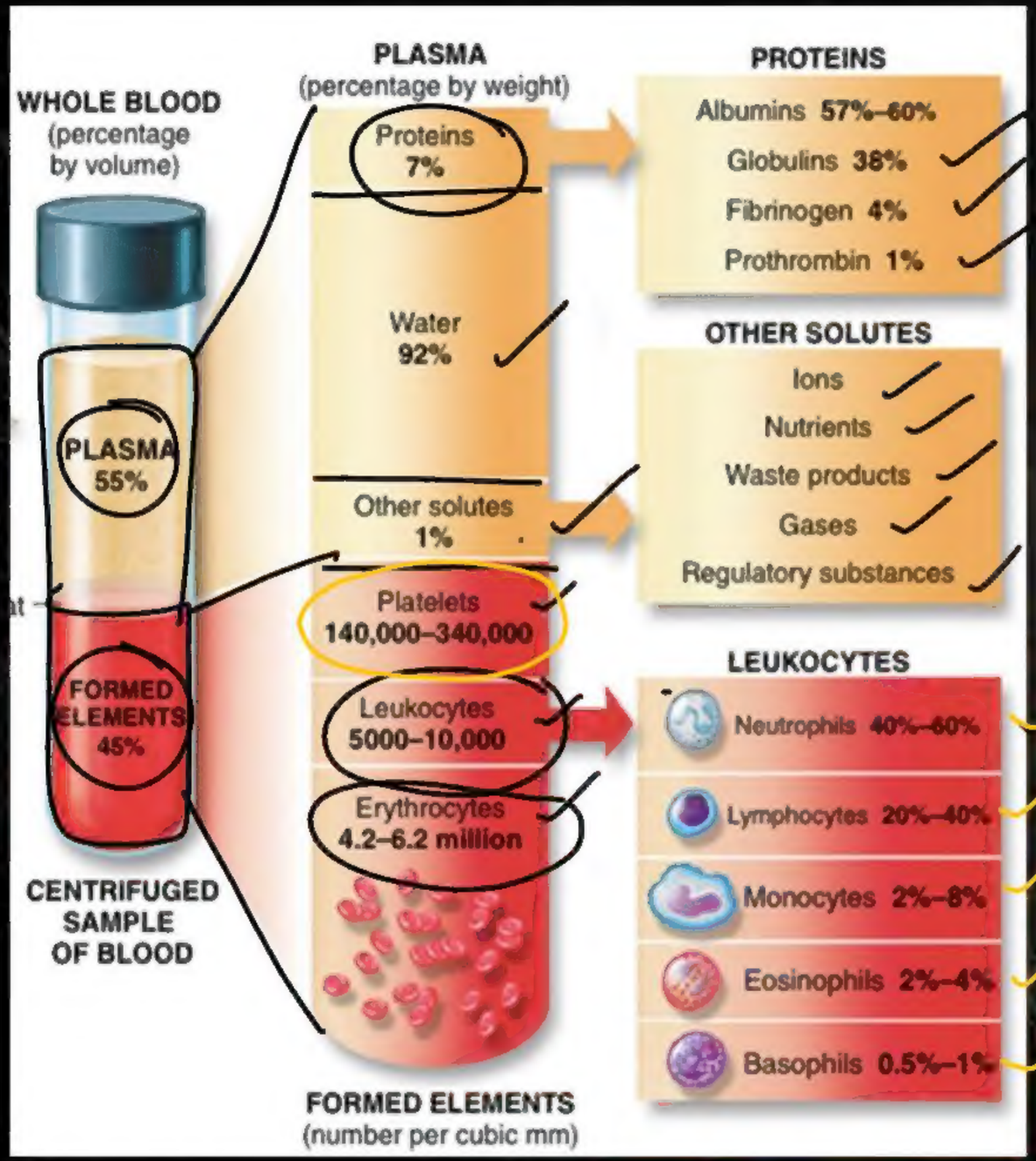
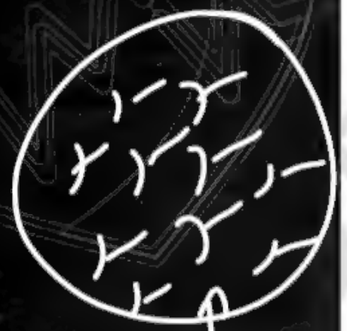
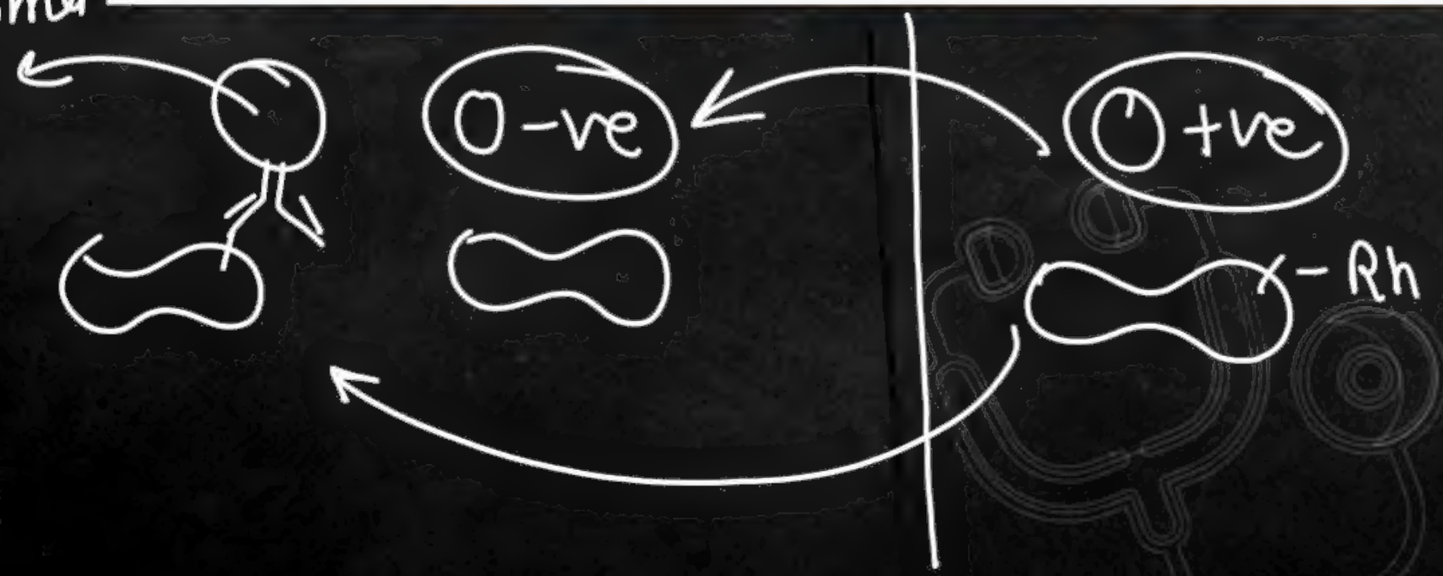

WHOLE BLOOD
(percentage by volume)
PLASMA
55%
FORMED ELEMENTS
45%
CENTRIFUGED SAMPLE OF BLOOD
PLASMA
(percentage by weight)
Proteins
7%
Water
92%
Other solutes
1%
Platelets
140,000–340,000
Leukocytes
5000–10,000
Erythrocytes
4.2–6.2 million
FORMED ELEMENTS
(number per cubic mm)
PROTEINS
Albumins 57%–60%
Globulins 38%
Fibrinogen 4%
Prothrombin 1%
OTHER SOLUTES
Ions
Nutrients
Waste products
Gases
Regulatory substances
LEUKOCYTES
Neutrophils 40%–60%
Lymphocytes 20%–40%
Monocytes 2%–8%
Eosinophils 2%–4%
Basophils 0.5%–1%

TABLE 18.1 Blood Groups and Donor Compatibility

Blood Group	Antigens on RBCs	Antibodies in Plasma	Donor's Group
A	A	anti-B	A, O
B	B	anti-A	B, O
AB U.R.	A, B	nil	AB, A, B, O
O U.D	nil	anti-A, B	O





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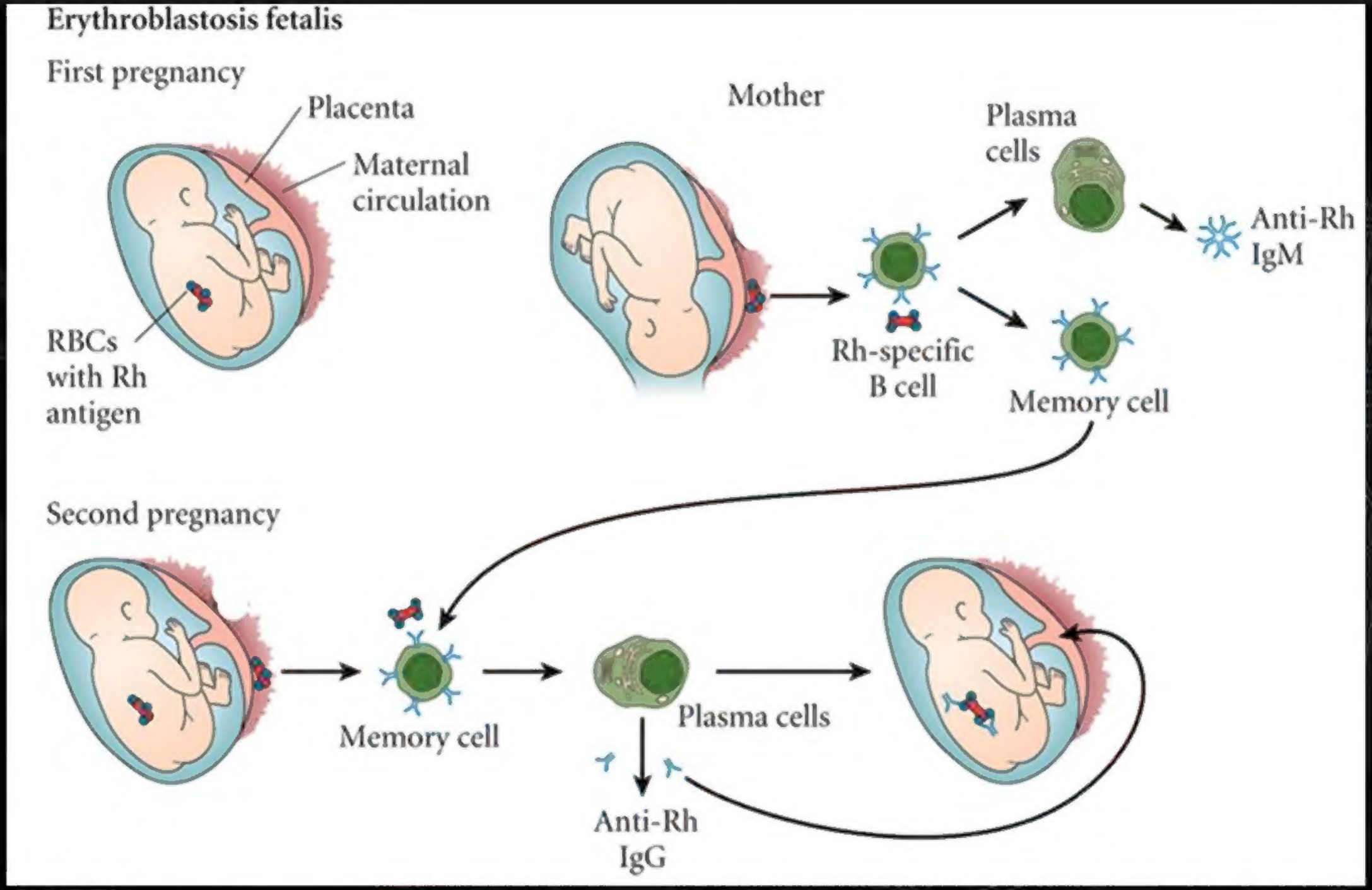
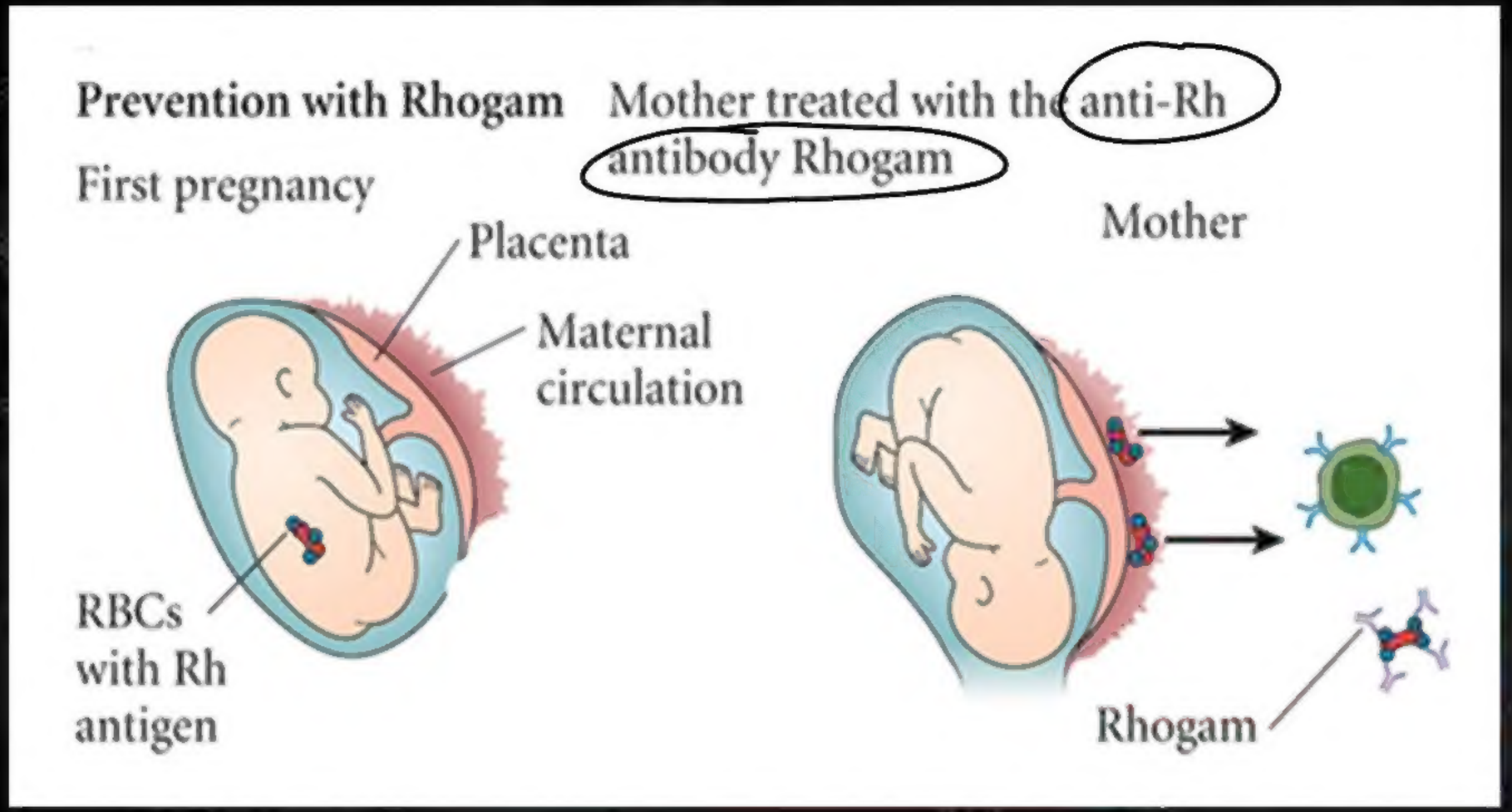
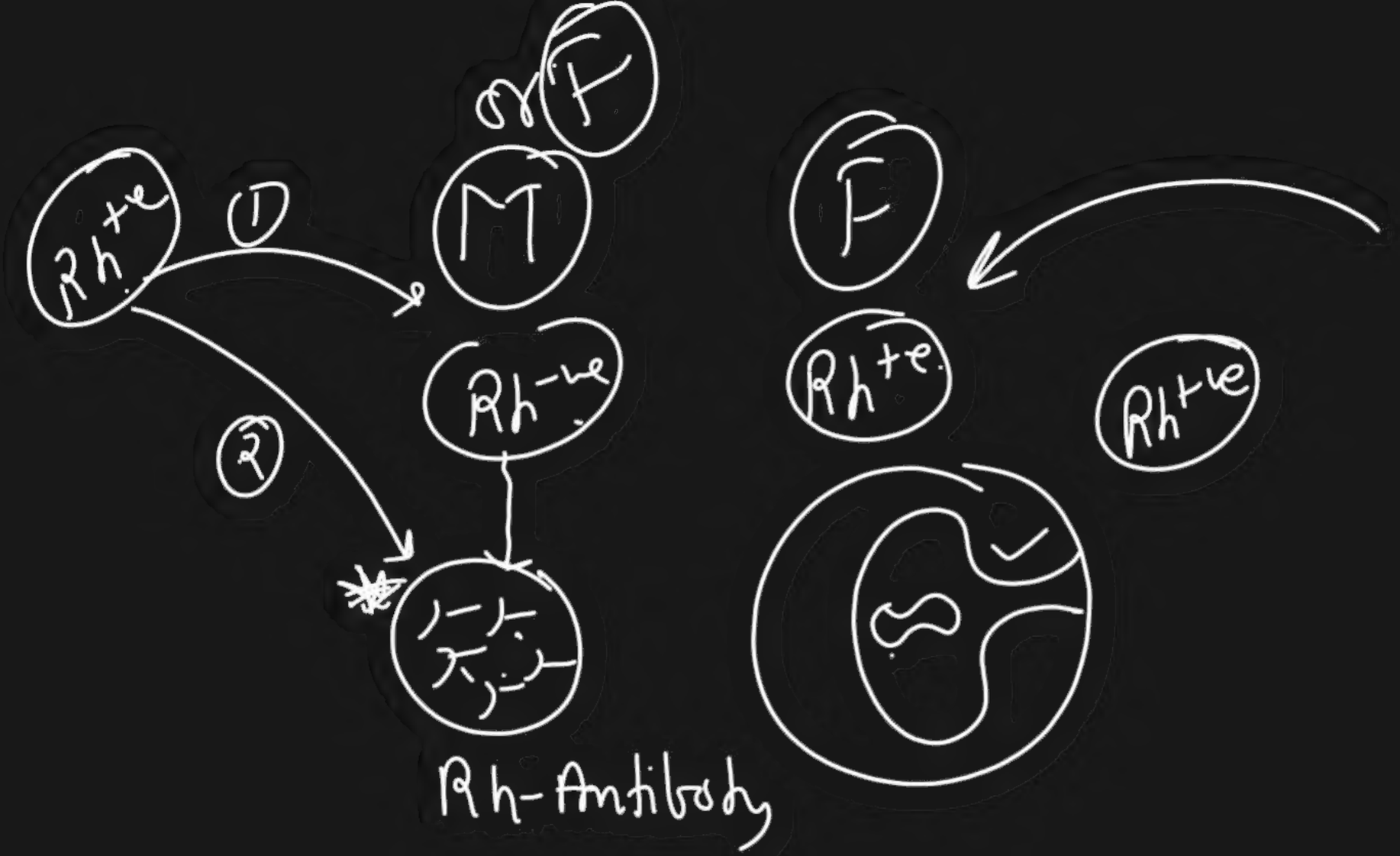
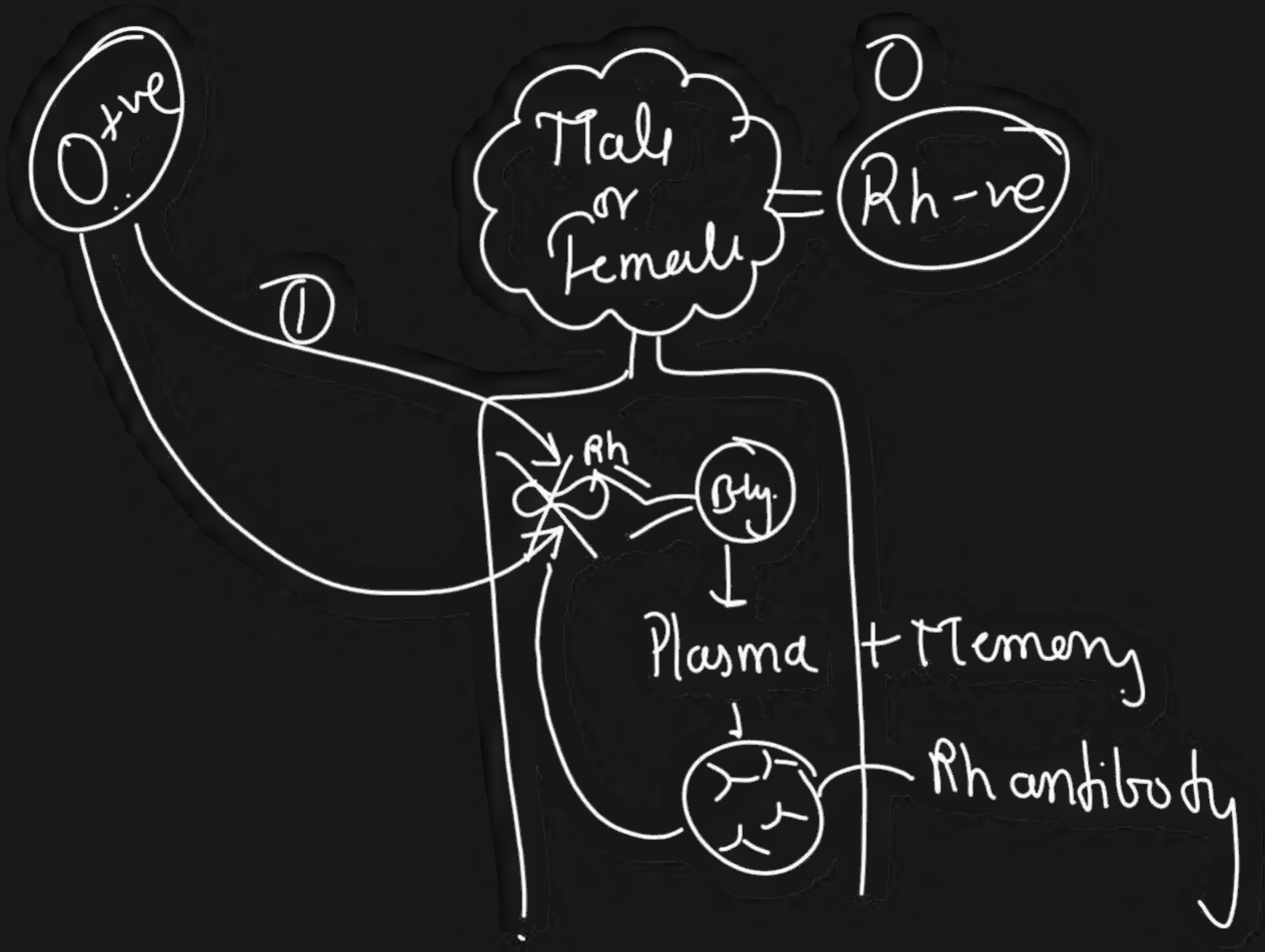

Erythroblastosis fetalis
First pregnancy
Placenta
Maternal circulation
RBCs with Rh antigen
Mother
Plasma cells
Anti-Rh IgM
Rh-specific B cell
Memory cell
Second pregnancy
Memory cell
Plasma cells
Anti-Rh IgG


Prevention with Rhogam
Mother treated with the anti-Rh antibody Rhogam
First pregnancy
Placenta
Maternal circulation
Mother
RBCs with Rh antigen
Rhogam


Rh+ve
①
or
M
F
Rh-ve
②
Rh-Antibody
F
Rh+ve
Rh+ve


O+ve
Male or Female
O
Rh-ve
I
Rh
Mem.
Plasma + Memory
Rh antibody

Doubts and Discussion

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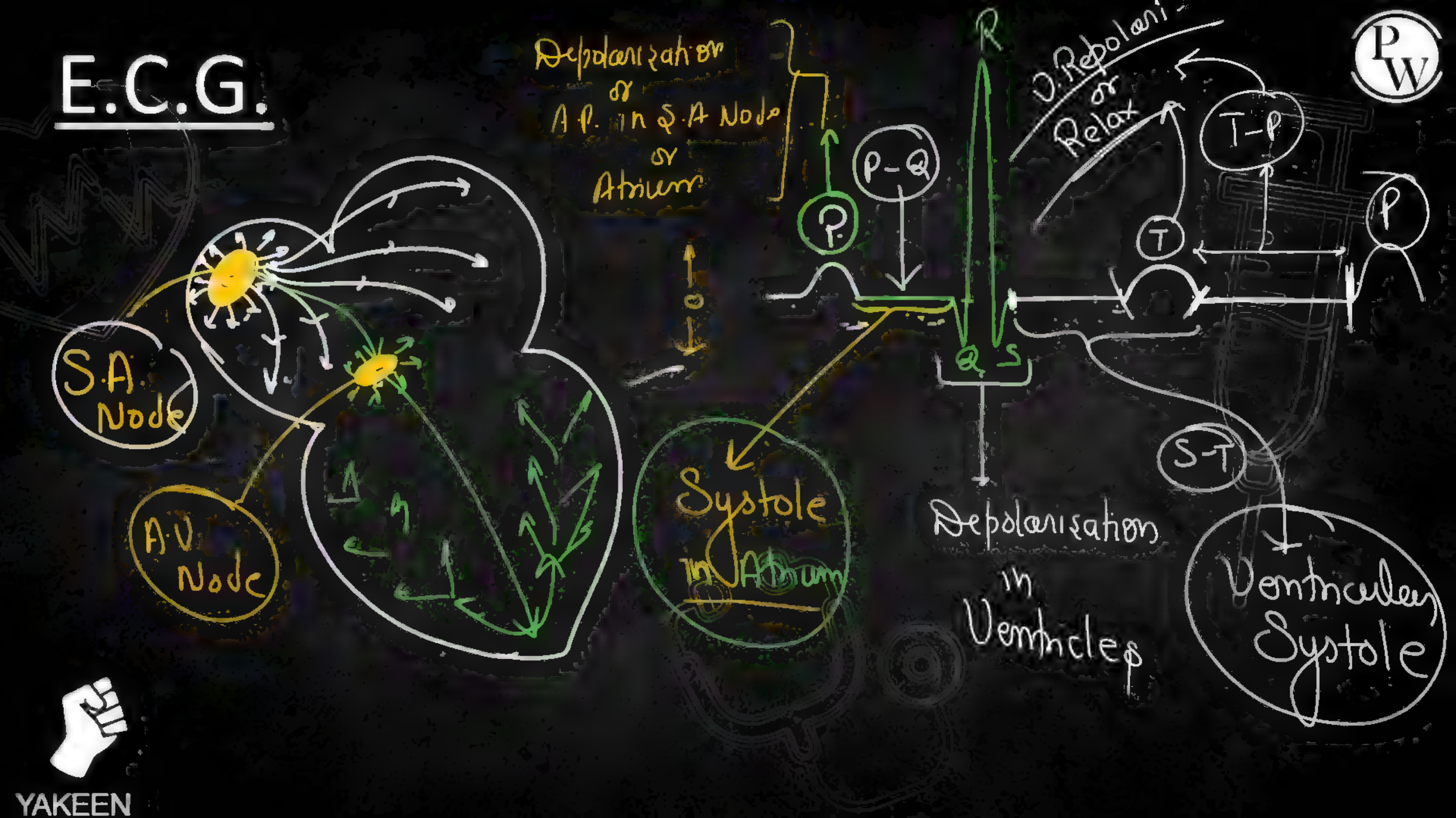
SUMMARY

PART- 2

HEART

E.C.G.


Depolarisation
or
A.P. in S.A Node
or
Atrium
S.A Node
A.V Node
Systole in Atrium
P
P-Q
R
Q
S
T
T-P
P
S-T
Depolarisation in Ventricles
Ventricular Systole

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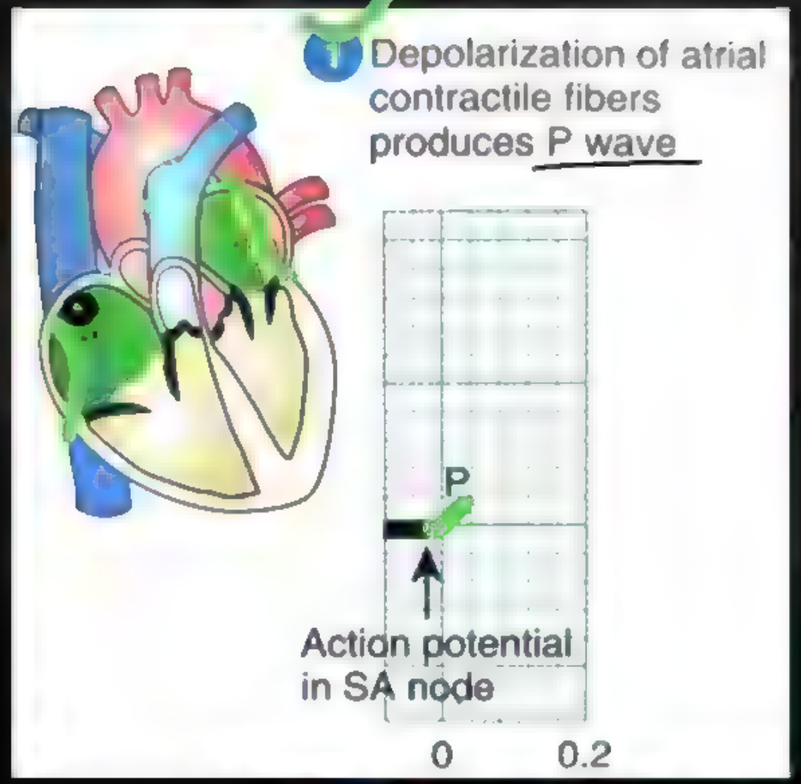
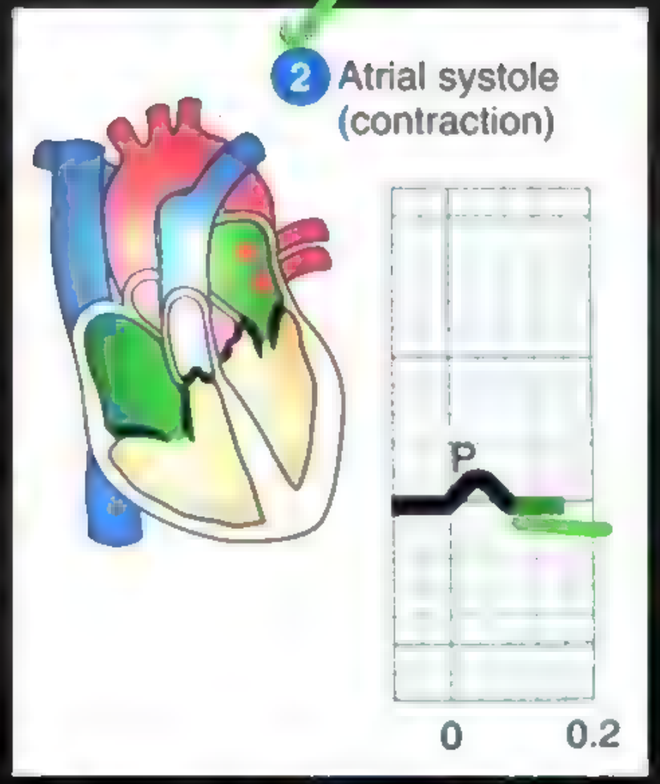
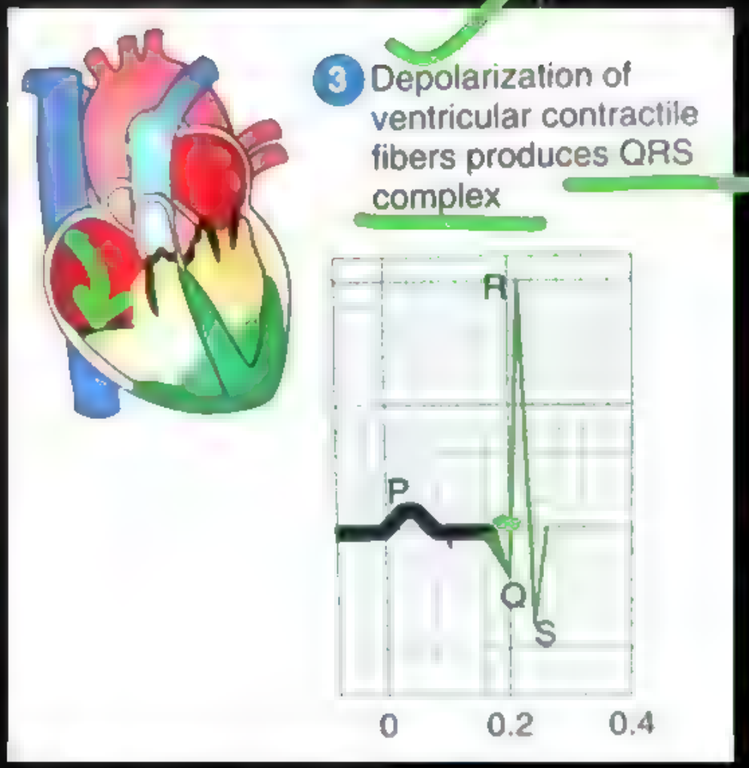
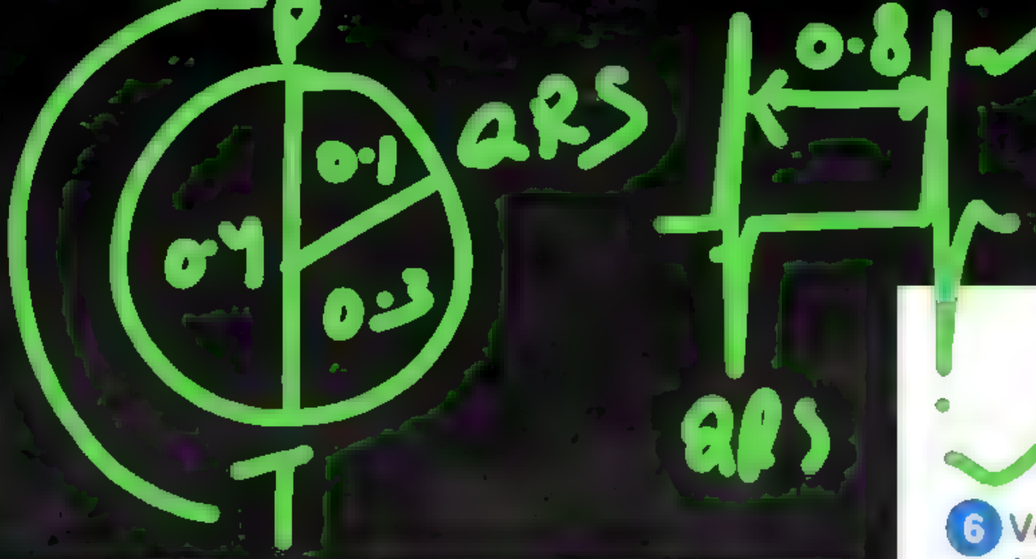
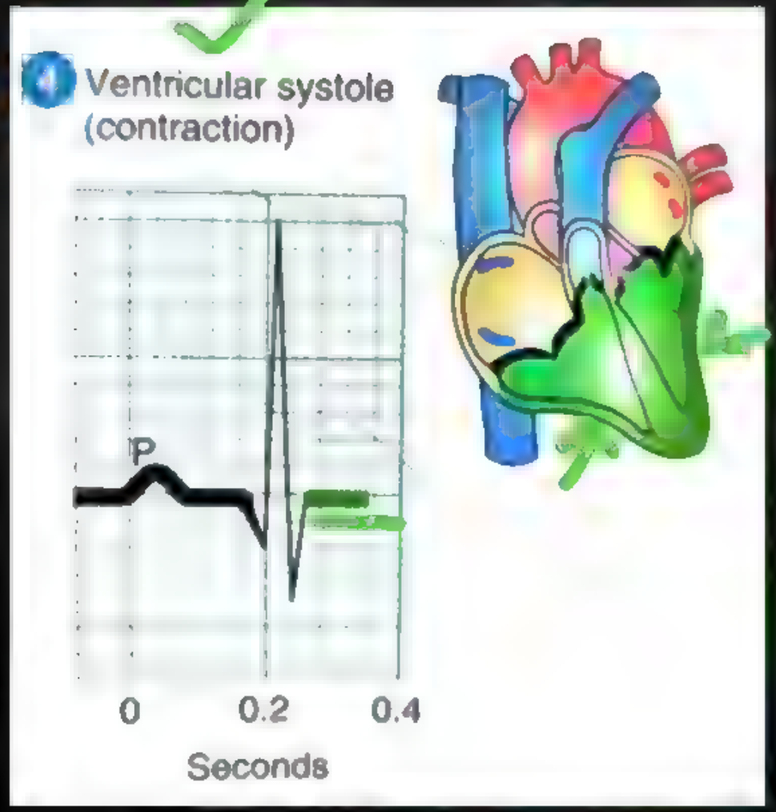

1 Depolarization of atrial contractile fibers produces P wave
P
Action potential in SA node
0
0.2

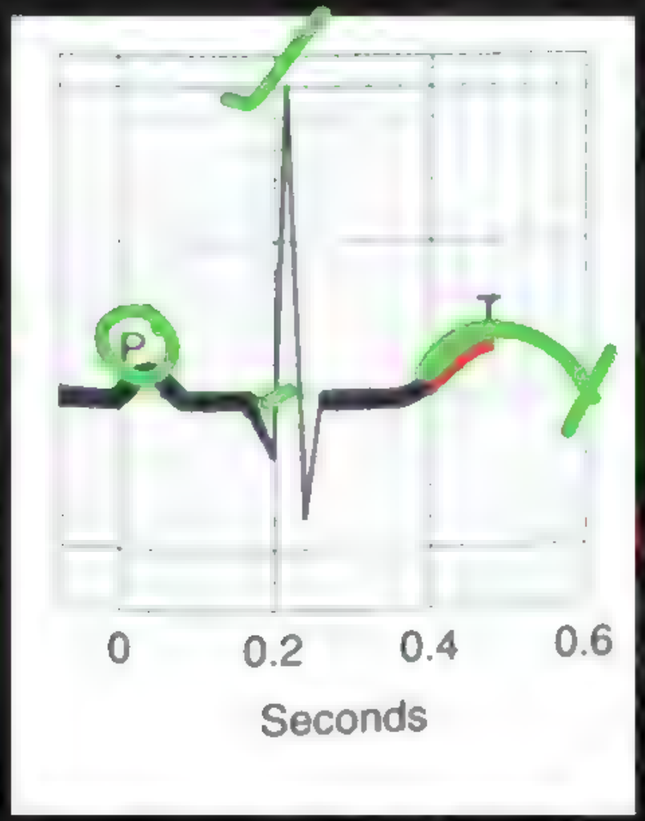

2 Atrial systole (contraction)
P
0
0.2

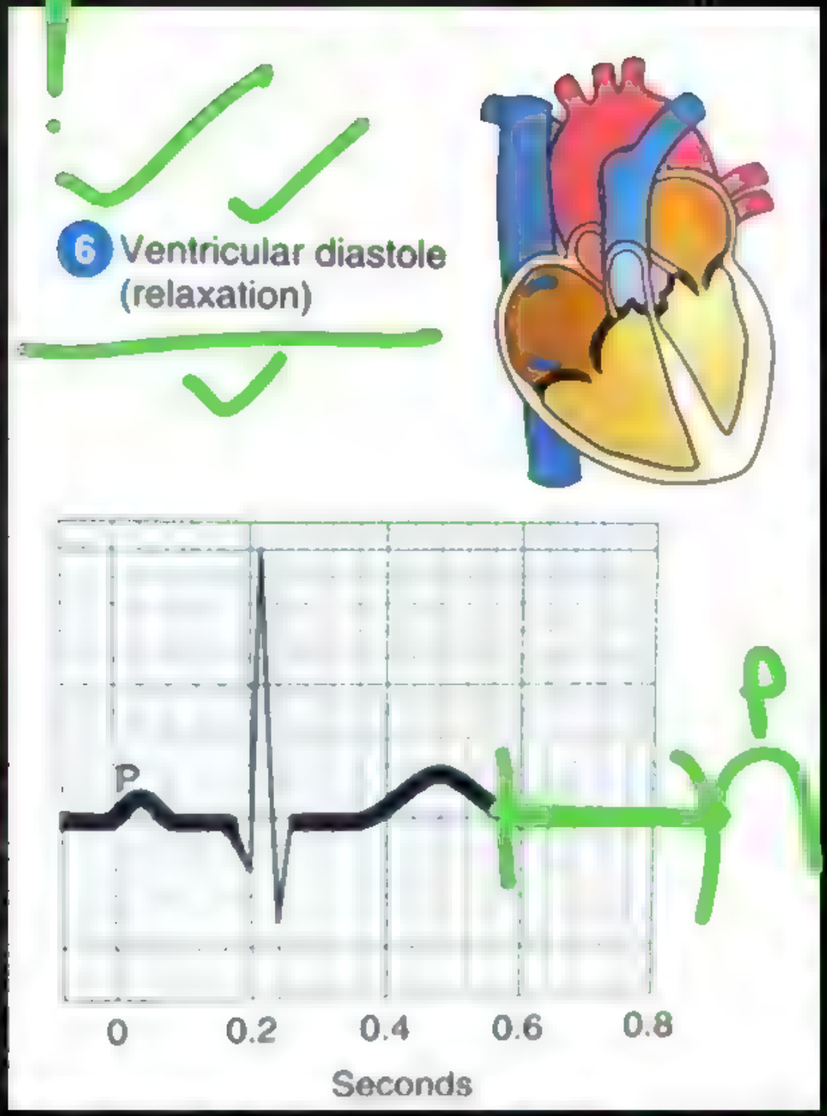

3 Depolarization of ventricular contractile fibers produces QRS complex
R
P
Q
S
0
0.2
0.4


0.1
QRS
0.4
0.3
T
0.8
QRS
QRS

08


4 Ventricular systole (contraction)
P
0
0.2
0.4
Seconds


P
T
0
0.2
0.4
0.6
Seconds


6 Ventricular diastole (relaxation)
P
P
0
0.2
0.4
0.6
0.8
Seconds

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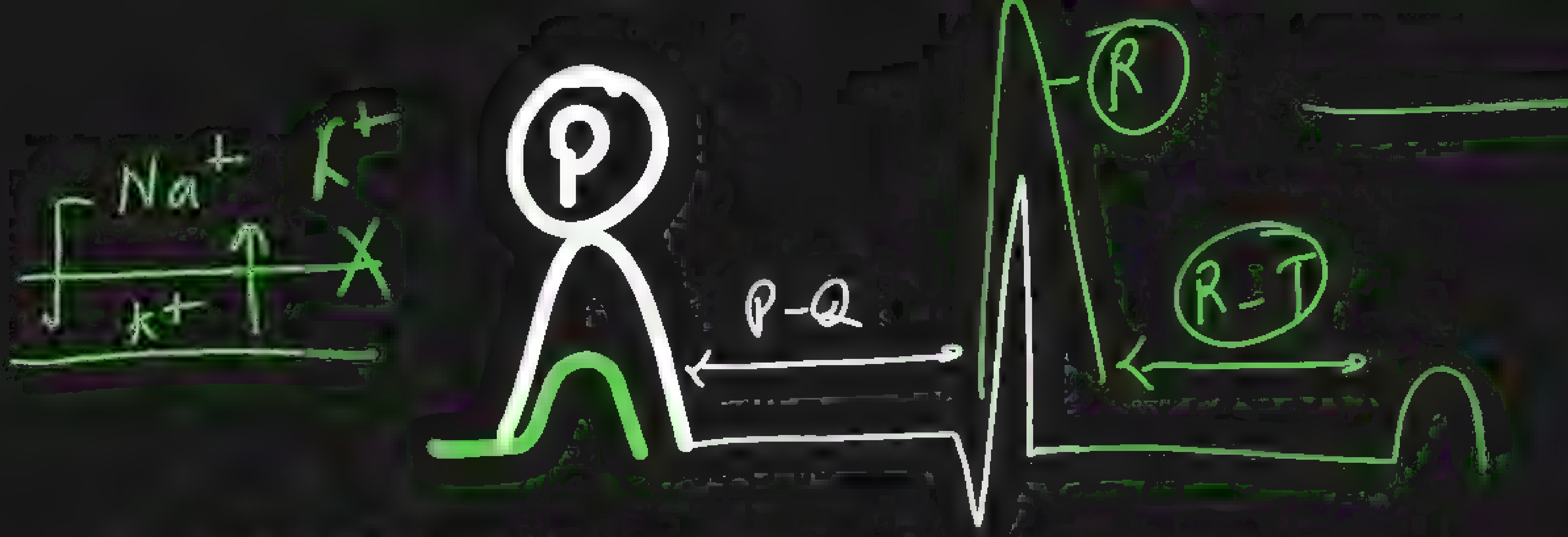

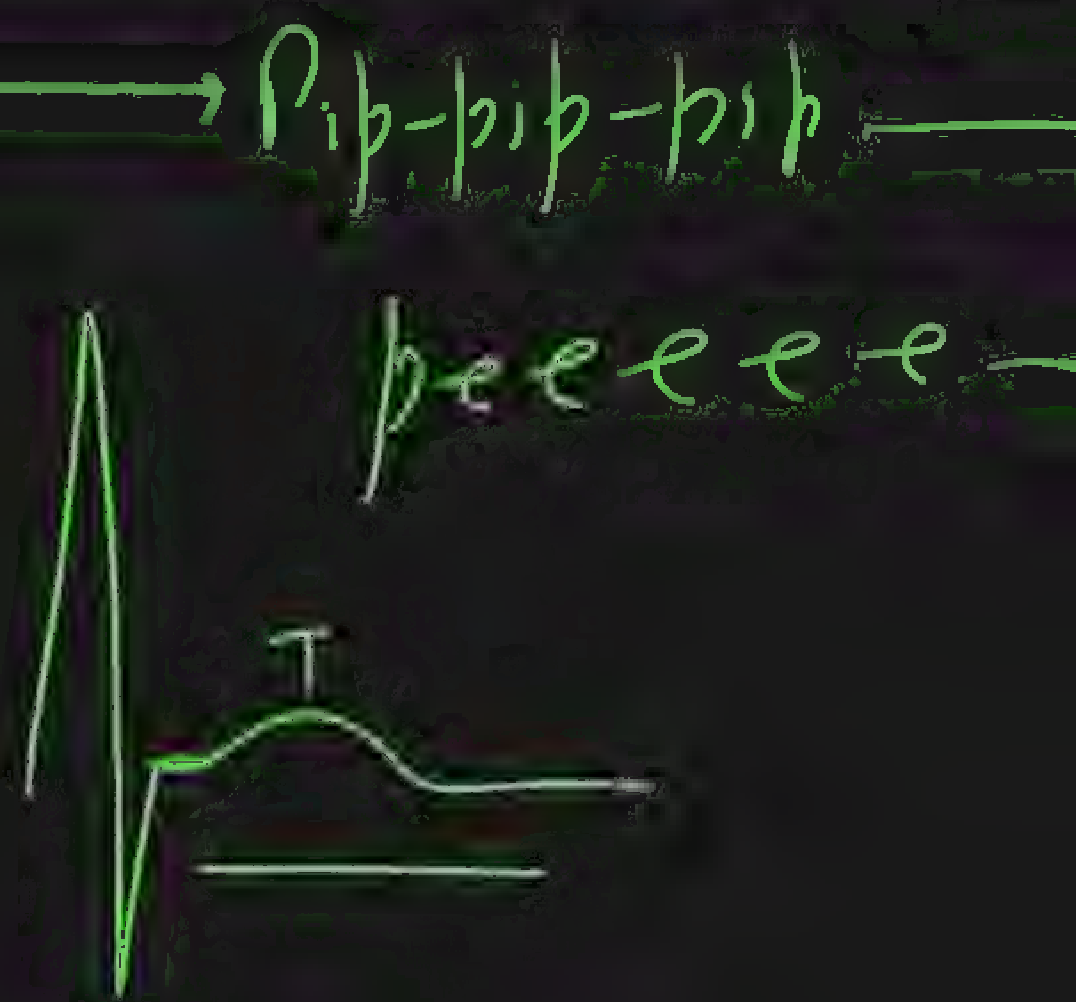

P = ↑ - ↑ Size of Atrium

P-Q = ↑ = Heart block

R-↑ / R-T = ↑ = Myocardial Infarction

T- flat / S-T = ↓ = Ischaemia.

Doubts and Discussion

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quiz

If cardiac supply of vagus nerve is cut then:

(A) Rate of heart beat increases.

(B) Rate of heart beat decreases.

(C) There is no change in heartbeat.

(D) Heart stops beating.

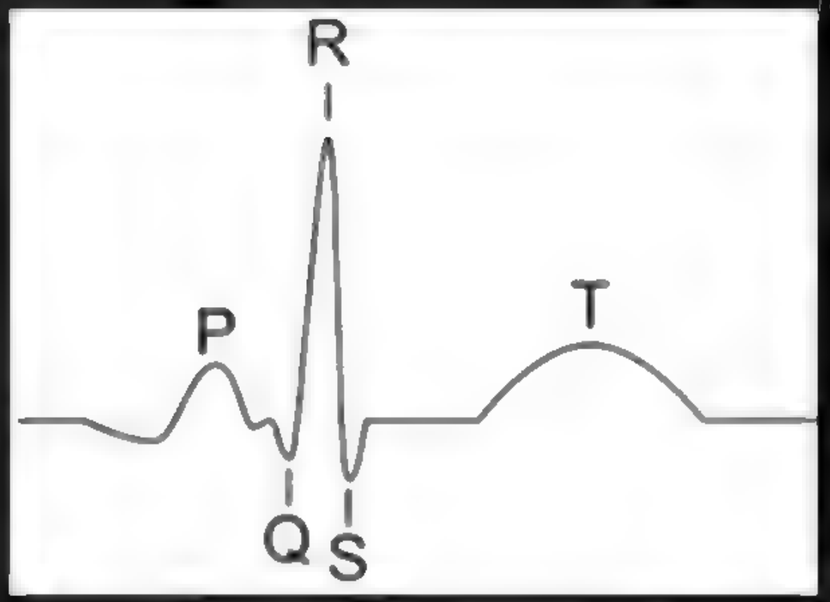
Given below is the ECG of a normal human. Which one of its components is correctly interpretated below:

(A) Peak P and R together- systolic and diastolic pressures

(B) Peak P – initiation of left atrial contraction only

(C) Complex QRS- one complete pulse

(D) Peak T- initiation of total cardiac contraction



Bundle of His is a network of

(A) Muscle fibres distributed throughout the heart walls
(B) Nerve fibers found throughout the heart
(C) Nerve fibers distributed in ventricles
(D) Muscle fibres found only in the ventricle wall

Cardiac output is defined as the amount of blood:

(A) Pumped by both ventricles per second
(B) Received in heart per minute
(C) Pumped by each ventricle per minute
(D) Pumped by left atrium per minute

Glucose is carried from digestive tract to liver by

(A) Hepatic artery
(B) Hepatic portal vein
(C) Pulmonary vein
(D) None of the above

What among the following is not detected by ECG?

(A) Heart block
(B) Valvular defects
(C) Myocardial infection
(D) Arrhythmia

How many cardiac cycles are performed per minute in humans?

(A) 1
(B) 12
(C) 27
(D) 72

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If one L of blood is drawn out of 5 L from the body of man, how much blood would be left by the next day?

(A) 5 L
(B) 4.5 L
(C) 4 L
(D) 3 L

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The duration of the ventricular diastole in a normal cardiac cycle is

(A) 0.3 second (B) 0.5 second
(C) 0.4 second (D) 0.7 second

The course of blood from the heart to the lungs and back to the heart is called

(A) Systemic circulation
(B) Pulmonary circulation
(C) Single circulation
(D) Double circulation

Which one of the following statements is correct regarding blood pressure?

(A) 190/110 mm Hg may harm vital organs like brain and kidney
(B) 130/90 mm Hg is considered high and requires treatment
(C) 100/55 mm Hg is considered an ideal blood pressure
(D) 105/50 mm Hg makes one very active

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Systemic heart refers to

(A) The heart that contracts under stimulation from nervous system
(B) Left auricle and left ventricle in higher vertebrates
(C) Entire heart in lower vertebrates
(D) The two ventricles together in humans

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The cardiac pacemaker in a patient fails to function normally. The doctors find that an artificial pacemaker is to be grafted in him. It is likely that it will be grafted at the site of

(A)Atrioventricular bundle
(B) Purkinje system
(C) Sinoatrial node
(D) Atrioventricular node

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The heart sound ‘dup’ is produced when

(A) Mitral valve is closed
(B) Semilunar valves at the base of aorta get closed
(C) Tricuspid valve is opened
(D) Mitral valve is opened


THANK
YOU ! !
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